LABNOTES *Spring 2003*

Environmental Labs Receive Recognition

The Department recently recognized the Berlin and Cedarburg wastewater treatment plant laboratories for demonstrating an outstanding commitment to producing high quality data by presenting them with the 2003 Registered Laboratory of the Year Awards. Secretary Scott Hassett presented the awards to Berlin's Dick Newport and Cedarburg's Mark Pipkorn and Eric Hackert at the Natural Resources Board meeting on March 26. This is the eighth year the Department has presented the awards.

Berlin's Dick Newport accepts his laboratory's award from DNR Secretary Scott Hassett (L) and ESS Section Chief, David Webb (R).

David Webb, Mark Pipkorn and Eric Hackert (L to R) are shown with Cedarburg's award.

"The efforts and expertise of these labs plays a critical, but sometimes overlooked, role in the protection of Wisconsin citizens and

Continued on next page

Also in this Issue:

Contact us at: (608) 267-7633 or LabCert@dnr.state.wi.us
Web Site: www.dnr.state.wi.us/org/es/science/lc

Labs of the Year, *continued.*

the environment," said David Webb, manager of the DNR Laboratory Certification and Registration program. "The work of these and other environmental labs provides the foundation for the science-based decisions that shape our policies."

Both labs routinely surpass the baseline requirements for compliance with department regulations.

In nominating the Berlin laboratory for the award, DNR audit chemist Camille Johnson made special mention of the strong quality control practices of Mr. Newport and his staff, as well as their attention to detail. Along with department wastewater engineer Mark Stanek, she was particularly impressed with Mr. Newport's understanding of the relationship between laboratory testing and the operation of the treatment plant. She also acknowledged Mr. Newport's willingness to perform testing more often than required by the plant's wastewater discharge permit to further monitor and refine the plant's treatment processes.

Department audit chemist John Condron was similarly impressed with Mr. Pipkorn and Mr. Hackert at the Cedarburg plant, noting that quality control testing is performed at a much greater frequency than required by rule. John also cited the extremely strict quality control limits that they have established for data acceptability, which ensure the defensibility of the lab data that supports the plant's compliance status with the requirements of its discharge permit.

Both labs were also commended for maintaining clear, thorough, well-organized laboratory records.

The DNR registers more than 280 municipal laboratories, 70 industrial laboratories, and 11 public health laboratories. It also certifies approximately 95 commercial laboratories in Wisconsin and 23 other states. For more information contact Greg Pils at (608) 267-9564 or gregory.pils@dnr.state.wi.us. □

LabNotes

Newsletter of the Laboratory Certification Program

LabNotes is published twice annually by the Wisconsin DNR Laboratory Certification and Registration Program. For information about distribution or to make suggestions for future articles, contact the editor.

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Program Administration

Certification and Registration Fees to Increase

Labs will see an increase in their certification and registration renewal fees when they receive their environmental fee statements in late May. Specifically, the cost per relative value unit (RVU) will increase from $48.50 to $52.50. Certification renewal fees for the typical commercial laboratory (certified lab base fee + test categories 1-8, 10, 12, & 14-16) will be $3,097.50. Registration fees for the typical municipal wastewater treatment laboratory (registered base fee + test categories 1-4) will be $735.00. The revised fee schedule is provided in the table below:

Laboratory Fees for FY 2004
(Sept.1, 2003 - Aug. 30, 2004)

Fee Item	FY 2004 Unit P
Registered Base Fee	$525.00
Certified Base Fee	$787.50
Reciprocity Fee	$1,575.00
Initial Application Fee	$315.00
Revised Application Fee	$157.50
Category 1	$52.50
Category 2	$52.50
Category 3	$52.50
Category 4	$52.50
Category 5	$105.00
Category 6	$105.00
Category 7	$210.00
Category 8	$210.00
Category 9	$210.00
Category 10	$210.00
Category 11	$210.00
Category 12	$210.00
Category 13	$210.00
Category 14	$210.00
Category 15	$630.00
Category 16	$210.00
Category 17	$630.00
Category 18	$1,050.00
Category 18a (Nitrate Only)	$105.00
Category 18b (Nitrate & Fluoride)	$210.00
Category 19	$210.00
Category 20	$1,365.00
Category 21	$210.00

The program held a public meeting in DeForest on February 15 to discuss the proposed fee adjustment, but there were no attendees. The Certification Standards Review Council reviewed the proposed FY 2004 fee adjustment on February 14, and unanimously passed a resolution recommending that the Natural Resources Board approve the proposal. The Board unanimously approved the fee adjustment on March 26.

Fees are calculated using the formula promulgated in s. NR 149.05, Wis. Adm. Code. This formula uses a relative value system to equitably distribute the cost of administering the program across all participating laboratories. Each fee item is assigned a relative value in s. NR 149.05, Table 2, Wis. Adm. Code. The total number of available RVUs is equal to the sum of the relative values of each fee item multiplied by the number of labs certified or registered for that fee item in the coming fiscal year. The cost per RVU is calculated by dividing the program's operating costs (not including projected travel costs for audits of out-of-state labs, for which these labs are billed directly) by the total number of available RVUs. The cost of each fee item is then determined by multiplying its relative value by the cost per RVU.

The driving factor behind the increase in fees for FY 2004 is the loss of 636 RVUs from the outset of FY 2003. Although the number of laboratories certified and registered by the program remains fairly constant, many labs dropped various tests and test categories from their certificates during the past year. With fewer RVUs across which to distribute the program's operating costs, the cost per RVU increased. We strive to hold down the cost of operating the program, and our FY 2004 budget is $52,000 below the program's spending authority as established under ch. 20, Wis. Stats.

Certification and registration renewal fees will appear on the environmental fee statements that will be mailed to laboratories in late May. Payment will be due in full by June 30, 2003. Late fees will be assessed to laboratories that fail to pay renewal fees by this deadline.

Please contact Greg Pils at (608) 267-9564 or gregory.pils@dnr.state.wi.us if you have any questions about your fees. □

NR 149 Revision Update

By Alfredo Sotomayor, NR 149 RAC Leader

Since the last issue of LabNotes, the NR 149 Revision Advisory Committee (NR 149 RAC) has met three more times and discussed possible changes to the Laboratory Certification and Registration Code in: the application and renewal process for participating laboratories, the role of the Certification Standards Review Council, and the administration of the Safe Drinking Water test category. At its last meeting, the NR 149 RAC had a chance to review a discussion draft focusing on quality assurance and quality control.

Application and Renewal

The NR 149 RAC agreed on the basic elements of two types of applications for participating laboratories. Initial applications would become the passport for entry into the program and would be comprehensive. Revised applications would be used to add additional certifications and registrations. An important recommendation of the NR 149 RAC would require laboratories changing their status from registered to certified to complete initial applications. The RAC also redefined notification requirements for laboratories relocating and undergoing ownership changes.

Safe Drinking Water & Other Categories

The new NR 149 should continue to cite by reference the "Manual for the Certification of Laboratories Analyzing Drinking Water" as the repository of the majority of the requirements for laboratories certified or seeking certification for this matrix tier. However, the NR 149 RAC recommended including explicit language in the code when the Department wished to require a more stringent practice than one required by the EPA manual, or when the Department desired to prescribe one option when the manual gives several.

For example, the NR 149 RAC agreed that improperly preserved drinking water samples received for analysis should be rejected and not analyzed, as currently required by the manual. However, the NR 149 RAC recommended including language in the code requiring flagging of results associated with improperly preserved samples as unusable to demonstrate compliance with the Safe Drinking Water Act if a client insisted on having such samples analyzed.

Criteria for certification of laboratories performing whole effluent toxicity will continue to be included in the Department's "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual." The NR 149 RAC agreed to incorporate the currently separate test category for "immunoassay" into the proposed fields of certification and registration.

Quality Assurance/Quality Control

The NR 149 RAC identified broad topics of quality assurance and quality control that would be desirable for inclusion in the revised code. This constituted the basis for a discussion draft of a potential quality assurance and quality control section for the new code. At its last meeting, the NR 149 RAC started to discuss the first available part of this draft in some detail. It is still too early to report on many specifics. Discussion so far has centered on establishing an agreeable balance between prescription and flexibility, accessibility and complexity, leanness and comprehensiveness for such topics as demonstrations of capability, content and format of quality manuals, and corrective action.

After the NR 149 RAC and the certification staff review the entire discussion draft, the Department will prepare a second draft incorporating their input and agreements. The next meetings of the NR 149 RAC are scheduled for May 22, and July 8.

For more information, please visit the NR 149 Revision page of the DNR website or contact NR 149 RAC leaders Diane Drinkman at (608) 264-8950 or diane.drinkman@dnr.state.wi.us or Alfredo Sotomayor at (608) 266-9257 or alfredo.sotomayor@dnr.state.wi.us. □

www.dnr.state.wi.us/org/es/science/lc/nr149

Survey Says…

By David Webb, Lab Cert. Program Manager

I just wanted to say thank you to those who take the time to complete and return the audit survey that you receive after an on-site evaluation. The information is very useful as we continuously strive to improve the program and it's value. I know I'm not always motivated to complete surveys—but the fact that you do indicates to me, among other things, that you care about the program and it's improvement. In general, survey return rates are quite high. It's been a

while since I've quantified the return rate, but I believe it's in the 60 to 80 % range. I'll also say that I get a lot of very positive feedback. For that I'm thankful, but constructive criticism is just as valuable for the pursuit of improvement.

Thank you again, and keep the surveys coming in. They are kept confidential, and I do read, analyze, and act upon suggestions submitted on them as appropriate. Don't ever hesitate to contact me in other ways, whether directly, or via the Certification Standards Review Council. □

New Responsibilities for Mr. Pils

By Greg Pils, Program Coordinator

I've recently been named Laboratory Certification and Registration Program Coordinator. What does this mean to you? Well, probably not a great deal. My primary responsibility, as it's been since I started working here in early 1997 (back when the Packers were NFL Champions…what glorious days those were…), will still be to audit labs, and I'll continue to be the guy to call with your questions about certification and registration fees. You can keep sending me your nominations for the Registered Lab of the Year awards, too.

Things will be a bit busier for me, however. In addition to a handful of administrative responsibilities, I'm coordinating the activities of our audit staff in both our central and regional offices. I'm also the program's liaison to DNR's Legal and Enforcement staff, as well as the Certification Standards Review Council, and will complement Phillip Spranger as a second general point of contact for you, our customers.

David Webb remains the staff supervisor and program manager for the Environmental Science Services Section, but I will assume responsibility for many of the day-to-day program operations.

I'm very enthused about this new opportunity primarily because it will allow me to get further involved with the most rewarding part of my job, which is working with all of you in the laboratory community. Without question, I enjoy working together with labs to provide technical guidance, clarify and explain regulatory requirements, and craft creative resolutions for audit deficiencies more than anything else I do here. For those of you whom I've worked with in the past, I look forward to expanding upon the groundwork we've laid. And for those of you whom I have yet to meet, I look forward to forging strong new collaborative relationships with you in the future.

Please feel free to contact me with any questions, concerns, and input you have at (608) 267-9564 or gregory.pils@dnr.state.wi.us. □

New Look for Web Site

The Department is in the middle of a major web site redesign. The redesign, which was started in 2002 and is currently undergoing user testing, is intended to give the DNR web site a cleaner, more coherent look and to promote consistency in how information is presented on the many DNR bureau and program web pages.

The web site should have a cleaner, more coherent look after the redesign, but some of the links have changed.

The Lab Cert. Program web pages also have a new look as part of the redesign, and all of the pages will eventually be reworked once the department-wide user testing is complete. Many of the changes to the Lab Cert. web pages are technical and occur behind the scenes. But a few changes have resulted in information not being in the same place web users were used to finding it.

The Lab Cert. home page address is the same. But many of the links to information have been moved to a third column on the right hand side of the home page. For example, the "What's New" information that used to be on the home page is on a separate "What's New" page that is accessible via a link in the right hand column. This is where laboratories can quickly check for the latest happenings related to laboratory certification and registration, like upcoming training programs, new guidance documents or important meetings.

The "Publications" link that used to be on the left-hand side of the page is also in the third column. This is where applications, the reference sample providers list, and various guidance documents can be found.

A "Feedback" link has been added to solicit comments on the redesigned web pages. Please take the opportunity to check out our redesigned web pages—your comments will help us make sure we are meeting your information needs. □

New Auditors for Northern Region

Due to program adjustments some of the geographic territories that regional auditors cover have been shifted. Starting on July 1, 2003, Camille Johnson, the lab certification officer located in Eau Claire, will cover all of West Central Region (except Crawford County), the western part of Northern Region and a few counties in the Northeast Region. She will contact each of her assigned laboratories when it is time to schedule a lab evaluation, but feel free to contact her with any questions you may have. Camille may be reached at (715) 831-3272 or camille.johnson@dnr.state.wi.us.

Please see the table at right to locate the Regional Auditor assigned to your county. While this may seem oddly distributed it has been set up based on lab distribution (they are really spread out up north) and available auditor work hours. There likely will be future shifts in lab assignments in response to changes in staffing and lab counts. We will do our best to keep you informed of new developments.

Regional Auditor Contact Information:

Don Domencich - (920) 743-4857
don.domencich@dnr.state.wi.us

Sturgeon Bay Service Center
110 S. Neenah Ave.
Sturgeon Bay, WI 54235

John Condron - (608) 267-2300
john.condron@dnr.state.wi.us

Madison Central Office
101 South Webster Street, PO Box 7921
Madison WI 53707-7921

Brenda Howald - (608) 275-3328
brenda.howald@dnr.state.wi.us

South Central Region Headquarters
3911 Fish Hatchery Road
Fitchburg, WI 53711

Camille Johnson – (715) 831-3272
camille.johnson@dnr.state.wi.us

Eau Claire Regional Headquarters
1300 West Clairemont Avenue, PO Box 4001
Eau Claire, WI 54702

DNR Regional Auditor by County

(Effective July 1, 2003)

County	Auditor*	County	Auditor*
Adams	Camille	Marathon	Camille
Ashland	Camille	Marinette	Don
Barron	Camille	Marquette	Camille
Bayfield	Camille	Menominee	Don
Brown	Don	Milwaukee	John
Buffalo	Camille	Monroe	Camille
Burnett	Camille	Oconto	Don
Calumet	Don	Oneida	John
Chippewa	Camille	Outagamie	Don
Clark	Camille	Ozaukee	John
Columbia	Brenda	Pepin	Camille
Crawford	Brenda	Pierce	Camille
Dane	Brenda	Polk	Camille
Dodge	Brenda	Portage	Camille
Door	Don	Price	Camille
Douglas	Camille	Racine	John
Dunn	Camille	Richland	Brenda
Eau Claire	Camille	Rock	Brenda
Florence	John	Rusk	Camille
Fond Du Lac	John	Sauk	Brenda
Forest	John	Sawyer	Camille
Grant	Brenda	Shawano	Don
Green	Brenda	Sheboygan	John
Green Lake	Camille	St. Croix	Camille
Iowa	Brenda	Taylor	Camille
Iron	Camille	Trempealeau	Camille
Jackson	Camille	Vernon	Camille
Jefferson	Brenda	Vilas	John
Juneau	Camille	Walworth	John
Kenosha	John	Washburn	Camille
Kewaunee	Don	Washington	John
La Crosse	Camille	Waukesha	John
Lafayette	Brenda	Waupaca	Camille
Langlade	John	Waushara	Camille
Lincoln	John	Winnebago	Don
Manitowoc	Don	Wood	Camille

* Regional auditor contact information is at left.

Auditor Responsibilities

Regional auditors are responsible for municipal and industrial wastewater treatment plant laboratories certified or registered for test categories 1-4. Central office auditors are responsible for commercial laboratories and those industrial and municipal WWTP laboratories certified or registered for test categories beyond 1-4 (5-21). See page 18 for contact information for central office staff. □

Laboratory Training Initiative

By Rick Mealy, Laboratory Training Coordinator

Recently, the Laboratory Certification and Registration Program sponsored training sessions for E. coli/fecal coliform testing and for ICP metals analysis. Both of these sessions were filled to capacity.

The E. coli/fecal coliform training session was conducted by the Wisconsin State Laboratory of Hygiene's (WSLH) Water Microbiology staff. Developed to support the Great Lakes Beach Initiative, this intensive 2-day session was designed to teach the latest methods for detecting E. coli in water. Instruction included lecture, video and hands-on laboratory sessions. A CD-ROM containing all presentations, videos and demonstrations from the seminar was provided to all participants.

The ICP training session consisted of a 2-day session providing critical information on ICP metals analysis including calibration, interference correction, quality control, and record keeping requirements. Our experiences during audits have demonstrated that very few chemists are provided with sufficient knowledge to truly understand the most critical aspects of ICP testing, particularly interference identification and correction. This training session, developed jointly by the WSLH and Lab Cert. staff highlighted the more detailed aspects of proper interference correction. The session was cosponsored by the Wisconsin Environmental Laboratories Association (WELA). Additional support was provided by J-Y/Horiba, Leeman Labs, and the Perkin-Elmer Corporation.

Also scheduled in May 2003 are a second 2-day (hands-on) training session for E.coli/fecal coliform determinations, and a one-day workshop for PCB analysis of biosolids. The PCB workshop is designed to assist laboratories in modifying their procedures to generate PCB data consistent with needs identified in recent guidance issued by the Department (see article on page 13 in this edition of LabNotes). □

Training resources:

- Laboratory Certification and Registration Program training web page

www.dnr.state.wi.us/org/es/science/lc/training

- The Wisconsin Rural Water Association (WRWA) monthly mailer of training announcements and the WRWA web site

www.wrwa.org/workshops.html

- DNR Operator Certification calendar of training opportunities

www.dnr.state.wi.us/org/es/science/opcert

Laboratory Certification–Related Training Calendar

October 21, 2003	Getting Back to Basics in the Laboratory	WWOA Conference - Pre-Conference Workshop	Demonstrates simple, step by step processes for testing analytical balances, preparing standards and, selecting and using the pipet appropriate for the job.
October 22, 2003	Getting the Best Chlorine Residual Data	WWOA Conference	Provides step by step instructions for making total residual chlorine measurements with a commercially available kit using the DPD method.
Sept.-Nov. 2003	Fecal coliform & E. coli Analysis	To be held at five (5) locations throughout the state. **Locations and dates to be announced.**	A 1-day session providing hands on training in the proper techniques and quality control for the determination of E. coli.

Quality Matters

By Donalea Dinsmore, DNR QA Coordinator

Method Comparability

Comparability may be the quality objective that is most frequently taken for granted. The standard line addressing comparability in many QA Project Plans reads something like this: "We will ensure comparability by using documented procedures that are approved by EPA and record any deviations from those procedures." And that's as far as the discussion goes.

Life would be simpler if we could assume that any of the EPA-approved procedures will yield comparable results. Setting method sensitivity issues aside, it's important to understand how a method performs on varying environmental matrices, but critical information about method performance may be buried in scientific literature or technical support documents and may not be available to the laboratory or data user. Analyses for PCBs in solid matrices illustrates this point.

Numerous projects confirm that samples extracted using sonication (method 3550) tend to be biased low when compared to the soxhlet-extracted samples (method 3540 or 3541). A previous draft of SW-846 methods included a statement to the effect that sonication is not as effective an extraction technique as soxhlet for PCBs and some pesticides. Unfortunately, the caution was removed from SW-846, so absent other direction, laboratories may choose sonication over soxhlet because it's quicker and data users may miss the subtle distinction in method numbers or be oblivious to the implications for comparability in their data set. The differences in data sets can be explained by varying extraction efficiency; however, it can complicate decision-making. (You may notice that the draft regulations for PCBs in biosolids and sludge specify soxhlet extraction.).

It's more difficult to explain the differences in metals results analyzed by what are generally seen as comparable methods. Our observations seem counterintuitive. When a facility shifts to a more sensitive analytical technique, frequently we see a shift to lower sample results, even when the concentrations are well within the quantitation range of each method. When considering requests for variances to wastewater permit limits, the DNR Permit Program began requesting that metals be determined by graphite furnace atomic absorption (GFAA) rather than ICP because of these observations. We attribute some of the differences we see to the sensitivity or resolution of each procedure.

In recent months, we have reviewed historical data from a groundwater site and saw precipitous drops in concentration when going from ICP to ICP-MS analysis on the same sample sources. Unfortunately, the results are not on the exact same sample but the observation does not appear to be related to an individual laboratory's performance. The higher results may be within compliance limits so they make little or no difference in decisions about a facility's compliance status. However, when the data are being used to calculate an alternate limit, its significance can't be overestimated.

At this point, we have limited data sets and almost no split sample results. I am interested in gaining a better understanding of why we observe these differences and how it might affect method selection decisions. If your laboratory has seen a similar phenomenon or has split sample results analyzed by multiple metal methods, consider forwarding the data set to Donalea Dinsmore. □

Genetic Detect

(Note: Opinions expressed in this article are solely those of the author and do not necessarily reflect the position of the Wisconsin DNR or the Laboratory Certification Program.)

If you listen to National Public Radio, you may have heard about the woman who lacked an enzyme necessary to metabolize codeine and as a result, became sick after it was prescribed for her. For another drug, one part of the test population proved to be so hypersensitive to the drug that it destroyed their bone marrow at normal doses. Another part of the population needed ultra-high doses of this same medication to see any effect. Although it would be ideal to have a single regime that applies universally, a protocol's effectiveness varies based on genetic differences in the population. Reactions to EPA's March 12, 2003 proposal for establishing detection and quantitation limits may parallel those seen by genetic pharmacologists testing drugs: the procedure's effectiveness depends on which part of the laboratory, method or instrument population the procedure is being applied.

Part of the difficulty with EPA's traditional approach to method detection limits (MDL) is that a single procedure serves multiple purposes. Common uses for MDL include demonstrating laboratory capability with a method, monitoring trends in laboratory performance, characterizing method sensitivity in a matrix and establishing an MDL for a new or revised method for nationwide use. Unfortunately, laboratories feel pressed to use the results of the approved MDL procedure even when it yields an unrealistic estimate of MDL. Industry groups pressed EPA to find a better way. EPA reviewed the literature and evaluated several different approaches to estimating method detectability. Some procedures use single laboratory data while others rely on multi-laboratory data to estimate detection limits. Those protocols that assume constant variance use a single concentration to estimate MDL while those that assume non-constant variance establish MDLs using multiple test concentrations. Each approach has its advocates. Ultimately, EPA proposed a single approach, a modification of its existing procedure, based on evaluation of six criteria:

1. scientific validity,
2. practical and affordable for a single lab to evaluate performance,
3. realistic expectation of performance,
4. 99% confidence that the substance is actually present,
5. quantitation that is achievable with a defined level of confidence in a well-operated lab (not state-of-the-art or least common denominator), and
6. applicable to the variety of decisions made under the Clean Water Act on Federal, State and Local level

Although it's hard to argue with these criteria, EPA's conclusions may seem to some like prescribing one treatment regime regardless of the subtle, but important differences in the population to which the MDL protocol is being applied.

To their credit, EPA acknowledges that no single pair of detection and quantitation limit concepts meets perfectly their criteria and that there are alternative detection and quantitation approaches that may be used to determine test method sensitivity. Unfortunately, because alternative approaches may be technically challenging, lack documented protocols and EPA approvals, or be costly to implement, both laboratories and regulators may be left with few alternatives when EPA's MDL procedure doesn't work well in their analytical or matrix-specific context.

We might all agree that it's reasonable to ask about a method's ability to detect a particular analyte; however, opinions diverge when we consider how that information is used. "Reasonable MDLs" may be in the eye of the beholder. EPA's Technical Support Document describes the competing interests inherent in pursuing a descriptive approach to detection, found in much of the literature, and a prescriptive approach designed for regulatory decision-making. An environmental laboratory with strong quality systems and modern equipment may have fewer objections to an MDL published in a method than a lab that must make a significant investment in equipment, training, or facilities before it can compete in the market. Likewise, regulators implementing effluent limits designed to be protective of human health and the environment seek methods with lower and lower detection limits while regulated facilities may be more concerned with the burdens associated with merely detecting a pollutant in their effluent.

In an era in which genetic pharmacologists suggest treatment protocols tailored to an individual's genetics, drug companies conduct drug trials on adult males and extrapolate the findings to women and children. Doctors rely on published literature, observation, experience, and professional judgment to adapt treatments to an individual patient's response. It's not yet feasible to tailor each treatment to individual genetics but technology may make that possible in our lifetime. We are at a similar place with MDL. We don't yet have easily understood, convenient tools to make sample-specific detection determinations with scientific rigor. EPA published a basic protocol that needs adjustment to suit the varying purposes and analytical context. Until technology makes more sophisticated tools practical to implement, laboratories need to rely on published literature, observation, experience, and professional judgment to tailor detection decisions to various purposes and method systems. A one-size-fits-all approach has serious limitations so federal, state, and local regulators need to be open to alternative approaches. We need more tools. □

Council Corner

By Paul Junio, Council Chair

In April, I attended a meeting of the Illinois Association of Environmental Laboratories (their version of WELA). At one point one of the member labs complained about having to repeatedly answer queries from the Illinois EPA about the meaning of their data. He had followed their required reporting format, even to the point of flagging data to indicate where one result or another required some clarification. This wasn't due to a holding time exceedance, a failure of method QC, or something that would adversely affect the data. It was merely to pass along information.

In Wisconsin, there is a movement to develop a standardized list of flags for data.

Unfortunately for the lab's sake, they will have to re-analyze some samples. Why? Because they were flagged, and flagged data won't be accepted to close a site.

Back home in Wisconsin, there is a movement to develop a standardized list of flags for data. Among the reasons for this is that compliance determinations and trends analyses are done on an analyte-by-analyte basis often with large datasets. Reviewers query databases for parameters of interest rather than looking at an entire report for each sample. To aid the data reviewers, flags have been proposed that would indicate certain things already available on the complete laboratory report. What this means is that labs might need to modify their Lab Information Management System (LIMS - we don't all use the same format) to be able to report these flags. Certainly, some LIMS programs don't have the ability to report more than 2 or 3 flags. A requirement to report more than that might be very costly, as a lab could be required to purchase a new LIMS, or pay to have the current one revised to do something it isn't meant to do.

Similar to the instance of the lab in Illinois, I have had to field calls from Department data reviewers to clarify the meaning of certain flags on our analytical reports. We include a description of what any flag means with each report, as well as a narrative that describes anything that is not sufficiently described by flags.

Let's be careful where this goes. It seems that the full laboratory report contains information that would aid in reviewing data submitted to the Department. By itself, standardizing flags won't ensure that data is interpreted correctly or change the attitude that flagged data is bad data.

NR 149 Revisions Proceeding

Recently, the re-write of ch. NR 149, Wis. Adm. Code, took an important step forward when the first portion of the Quality Control procedures was distributed for review by the Committee. Please keep in mind that this draft is not meant for broad distribution, rather it is intended to foster discussion at the Committee level. Rest assured that there will be ample time for public comment before this is all finalized. As always, guests are welcome to attend the Committee meetings. Meeting minutes and schedules are posted on the web. □

www.dnr.state.wi.us/org/es/science/lc/nr149

Proficiency Testing

List of Approved Reference Sample Providers Expanded

Two new reference sample providers have been approved for use by Wisconsin certified and registered laboratories. The addition of SPEX CertiPrep of Metuchen, New Jersey and Wibby Environmental of Golden, Colorado, expands the choices available to laboratories when meeting the administrative code requirements for reference samples for annual renewal or with applications. SPEX is currently offering inorganic reference samples in both water pollution (WP) and water supply (WS) studies. Wibby provides organic and inorganic WP and WS studies.

There are now ten approved reference sample providers for Wisconsin. Make sure you check the updated "Approved Reference Sample Providers" list available on the Lab Cert. web site or by calling (608) 267-7633 to make sure that the provider you intend to use is approved for the specific tests you are interested in. □

www.dnr.state.wi.us/org/es/science/lc/whatsnew

BOD PT Required Even for Labs Doing CBOD Testing

The required reference sample for test category 1-Oxygen Utilization is biochemical oxygen demand (BOD). Even if a laboratory is certified or registered for carbonaceous biochemical oxygen demand (CBOD) and regularly tests plant effluent for CBOD, the laboratory still must annually submit an acceptable reference sample result for BOD in order to renew certification or registration for BOD/CBOD. In fact, a CBOD reference sample is not required and will not be evaluated or counted towards certification or registration renewal. Many labs do analyze CBOD reference samples, but this is optional.

The requirement for a BOD reference sample for renewal is found in s. NR 149.04, Table 1, Wis. Adm. Code. Table 1 clearly indicates that the "key analyte" and "required reference sample" for test category 1 is BOD.

Under certain circumstances, DNR wastewater permit staff may revise a wastewater treatment facility's discharge permit to include CBOD monitoring in addition to BOD if the facility can show that nitrifying bacteria in the effluent are causing excessive depletion of dissolved oxygen in samples. However, this still does not change the requirement for annually submitting an acceptable BOD reference sample result for renewal of the test category 1 tests (BOD and CBOD). Also, since CBOD is considered a separate test under the administrative code, laboratories that perform CBOD analyses for a discharge permit must make sure that their certificate lists CBOD (see related article in LabNotes Spring 2002, page 12). □

DMR-QA Study 23 Update

Initial indications from EPA are that the timeline for DMR-QA Study 23 will be similar to that for last year. WPDES permitees that are required to participate in DMR-QA will receive the DMR-QA Study 23 packet by the end of May. Please read through the instructions thoroughly. The Wisconsin State DMR-QA coordinator is Phillip Spranger. He may be reached at (608) 267-7633 or at phillip.spranger@dnr.state.wi.us. □

Wastewater Focus

Sample Size for Wastewater Effluent Monitoring

Laboratories that analyze wastewater effluent and other environmental samples must assure that they have adequate sample size for the analyses they intend to perform, including any required replicates. While this seems like a pretty straightforward statement, neither the administrative code nor state statute provide requirements that address the volume of sample collected or the bottle sizes to be used by laboratories.

The driving force here is whether the laboratory's analytical practices are adequate to meet the data quality needs of the department. In other words: Can the laboratory meet program-directed limits of detection for the tests being performed and prepare quality control samples (replicates) when required?

The Department's Watershed Management Program became concerned that permittees were inconsistently reporting biochemical oxygen demand (BOD) and total suspended solids (TSS) "less-than" results, so the Department issued the following to all WPDES permittees in December 1999:

- The desired reporting limit for effluent BOD is 2 mg/L. To obtain this reporting limit for the cleanest samples, the BOD test method requires analysts to incubate undiluted sample and add nutrients directly to the BOD test bottle.
- The desired reporting limit for effluent suspended solids is 2 mg/L or less. To obtain this reporting limit for the cleanest samples, the TSS test method requires analysts to filter at least 500 milliliters of sample and accept as valid, filter weight gains as low as 1 milligram.
- If you contract with a commercial lab for your testing, be aware that they may ask you to ship additional sample so they can meet the desired reporting limits.

For "cleaner" effluents (BOD < 7 mg/L; TSS < 10 mg/L) a single liter of sample for BOD and TSS analysis is insufficient. At least 500 mL is required for TSS, and at least 300 mL is needed

Continued on next page.

***Sample Size**, continued.*

for just one dilution for BOD testing. For most facilities, a second dilution for BOD typically is prepared using at least 200 mLs (and often 250 mLs). A sample volume of 1,000 mLs absolutely prohibits the laboratory from generating a third dilution or any replicate samples. □

Getting Good Data First Hurdle To Implement Mercury Rule

The Wastewater Mercury Rule that became final in November 2002 is now in the implementation phase. The first issue permittees covered by the Mercury Rule face is the generation of quality mercury data. The Department is providing help to permittees in the form of written guidance, training sessions and other informational materials.

The Department is currently finalizing sample collection guidance for permittees that covers communicating with their contract lab, determining supplies and equipment needed, selecting sample locations and step-by-step procedures for taking samples. The guidance will also provide instructions for how to report the data to DNR and assess data quality for making future procedure adjustments. We anticipate the guidance will be finished by around June 1, 2003. It will be made available on the Department's web site on the Mercury Rule page.

Besides the written guidance, the following resources are available:

- Copies of an EPA 20-minute video (VHS format) on the "clean hands/dirty hands" sampling procedure. For a free copy, contact Tom Mugan at (608) 266-7420.
- The Federation of Environmental Technologists (FET) is planning a one-day workshop on June 25, 2003 in Kimberly on mercury sampling and analytical issues. You may download a registration form from the Department's Mercury Rule web page. FET may sponsor similar workshops at other locations later in the year.
- The UW Extension, Solid and Hazardous Waste Education Center in cooperation with Wisconsin Wastewater Operators Association and DNR is planning 5 half-day training sessions on mercury rule requirements, including sampling and pollution prevention. The first session will be sometime in early fall. Watch for announcements by mail. For additional information contact Jack Annis at (715) 346-2793.

One of the challenges for the Department is deciding how to incorporate field blanks into the routine used by permittees to sample and report results for mercury. Discharge Monitoring Report (DMR) forms will have separate columns for reporting field blank results.

Since permits for publicly owned treatment works also require mercury monitoring of influent wastewater (using composite samples), some permittees have questioned the proper procedures for field blanks. The written guidance, mentioned earlier in this article, will provide instructions on that issue. We've also tried to specifically state in permit language that a field blank must be collected each day samples are collected. But permittees are instructed to focus on sampling procedures used for effluent samples when assessing contamination using field blanks. Assessing contamination for the influent samples may be done using field blanks or other procedures, as specific situations dictate.

We believe the labs that have received recognition under the emerging technology provision of s. NR 149.12, Wis. Adm. Code, to perform low-level mercury analysis are important players in helping permittees through the sampling and analysis steps. These labs were involved in helping put together the guidance. Please be sure to communicate with your laboratory with questions or suggestions.

For further information on the Mercury Rule or the guidance, contact Tom Mugan in the Bureau of Watershed Management at (608) 266-7420 or tom.mugan@dnr.state.wi.us or DNR QA Coordinator, Donalea Dinsmore at (608) 266-8948 or donalea.dinsmore@dnr.state.wi.us. □

www.dnr.state.wi.us/org/water/wm/ww/mercury/mercury.htm

Permittees Must Report LOD and LOQ

The Department recently re-emphasized to wastewater permittees the need to report LOD and LOQ values on Discharge Monitoring Reports (DMRs). Instructions were included with the mailing of second quarter DMR forms. The Department uses LOD and LOQ information when evaluating compliance, especially when the

LOQ approaches the regulatory level (i.e. the permit limit). Please be sure that your laboratory's analytical reports clearly display the LOD and LOQ values.

Permittees are not required to report the LOD and LOQ on DMRs for all substances. However, please note that the Laboratory Certification Code at s. NR 149.11(5), Wis. Adm. Code, requires that labs determine the LOD and LOQ for all analytes. The note that was enclosed with the DMR mailing is available on the Watershed Management web page. □

www.dnr.state.wi.us/org/water/wm/ww/lodinfo.pdf

PCB Guidance for Land Application of Industrial Wastewater Sludge and Municipal Biosolids

By Greg Kester, Residuals Coordinator

DNR recently formalized guidance for PCB analysis in municipal biosolids and paper mill sludge. DNR also has obtained authorization to hold public hearings to incorporate that guidance into regulations. The public hearings will be held simultaneously by video conference in five locations across the state beginning at 9:00 AM on June 17, 2003. One section of the guidance and proposed regulations requires improved analytical techniques of which you should be aware. It has been concluded that analytical data on PCB levels in biosolids has been unreliable to date. While this guidance is voluntary until adopted as regulation, it is anticipated that many municipalities and paper mills will request PCB analysis using these techniques.

Analytical methods

Either congener-specific analysis or Aroclor analysis may be used to determine the total PCB concentration.

- EPA Method 1668 may be used to test for all PCB congeners. This method of analysis is acceptable at the discretion of the permittee. If this method is employed, all PCB congeners should be delineated. It is recognized that a number of the congeners will co-elute with others, so there will not be 209 results to sum. However, all results should be added together to enable the reporting of a total PCB dry weight result. Non-detects should be treated as zero. Values between the LOD and the LOQ should be summed using the result.
- EPA Method 8082 should be used for PCB-Aroclor analysis and may be used for congener specific analysis as well. It is up to the discretion of the permittee to have an Aroclor or congener specific analysis performed. If congener specific analysis is performed using Method 8082, the list of congeners tested should include, but should not necessarily be limited to, congener numbers 5, 18, 31, 44, 52, 66, 87, 101, 110, 138, 141, 151, 153, 170, 180, 183, 187, and 206.

Extraction, Clean up & Detection Limits

For either method, the sample should be extracted using the Soxhlet extraction Method 3540C.

In order to remove interference, clean up steps of the extract are required as necessary to achieve the lowest detection limit possible. Experience with these methods shows that an LOD of 0.11 mg/kg should be anticipated for Aroclor analyses in most cases. If a congener specific analysis is done using method 8082, an LOD of 0.003 mg/kg for each congener should be anticipated in most cases.

If the anticipated LOD cannot be achieved after using appropriate clean up techniques (see below), a reporting limit that is achievable for the sample should be determined. This reporting limit should be reported and qualified indicating the presence of an interference when one exists. One or more of the following clean-up steps may be necessary:

- 3620B - Florisil
- 3640A - Gel permeation
- 3630C - Silica gel
- 3611B - Alumina
- 3660B - Sulfur Clean Up
- 3660A - Sulfuric Acid Clean Up

It should also be noted that the guidance and proposed regulations will significantly increase the number of PCB analyses labs will be requested to perform. The frequency will be the same as is currently required for metals.

Continued on next page.

***PCB Guidance**, continued.*

Monitoring frequency

All municipal biosolids and those industrial sludges that are land applied and may contain PCBs should be monitored for PCBs. Monitoring frequency should be dependent on the amount of material that is land applied on an annual basis.

For municipal biosolids, the monitoring frequency should be determined as follows:

Dry Tons of Municipal Biosolids Land Applied per 365 Day Period	Monitoring Frequency
Less than 320	Once per year
> 320 but < 1,654	Once per quarter
> 1,654 but < 16,540	Once per 60 days
16,540 or greater	Once per month

For industrial sludge, PCB monitoring requirements should be determined in accordance with s. NR 214.18(5), Wis. Adm. Code. For paper mill sludge, the monitoring frequency should be quarterly, however, that frequency may be modified based upon:

- Input stream for fiber including consideration of whether waste paper is used; and
- The concentrations in and variability of past analytical results

PCB Analytical Training

If you are currently certified to conduct PCB analyses, you should have received a letter of invitation to attend a training session on these methods from the Wisconsin State Laboratory of Hygiene. The training was held in Madison on May 20, 2003. If you were unable to attend this session and are interested in the information presented, copies of the handouts are available on the Lab Cert. training web page or by calling Phillip Spranger at (608) 267-7633 or phillip.spranger@dnr.state.wi.us. Questions regarding the PCB guidance may be directed to Greg Kester, P.E., at (608) 267-7611 or greg.kester@dnr.state.wi.us. □

www.dnr.state.wi.us/org/es/science/lc/training

Wastewater Analyst's How-To

The $(BOD)_5$ Replicate - A Slightly Different Animal

By John Condron, Southeast Region Certification Officer

$(BOD)_5$ replicates are a little different from other test parameter replicates. Are you doing $(BOD)_5$ replicates correctly? The proper approach is to set up the replicate exactly the same as the sample. In particular, use the exact same number of dilutions and the exact same dilution volumes in the replicate that you did with the sample. Please see the example below (based upon actual data), for a sample and a replicate that was read out on April 2, 2003. Correct calculations for the replicate will compare the first sample series to the replicate series. For example:

4/2/2003	Final effluent sample (150 mL) BOD	= 4.94 mg/L	
4/2/2003	Final effluent sample (200 mL) BOD	= 4.38 mg/L	
	Average BOD of sample series:	= 4.66 mg/L	Range between sample avg. and replicate avg.: 0.11 mg/L
4/2/2003	Final effluent replicate (150 mL) BOD	= 4.98 mg/L	
4/2/2003	Final effluent replicate (200 mL) BOD	= 4.56 mg/L	
	Average BOD of replicate series:	= 4.77 mg/L	

This is clearly different than replicates from other tests such as Total Suspended Solids (TSS), ammonia, and total phosphorus. With these tests, you simply need to repeat whatever dilution volume you used for the sample with the same volume used for the replicate. Please see an example of a TSS effluent sample and replicate (based upon actual data) that was done on April 9, 2003.

4/9/2003	TSS effluent sample 500 mL	= 3.8 mg/L	Range between sample and replicate: 0.2 mg/L
4/9/2003	TSS effluent replicate 500 mL	= 4.0 mg/L	

If you have any questions about the proper procedure for setting up replicates, please call your regional certification officer (see page 6 of this newsletter for contact information). □

DO YOU KNOW HOW TO ZERO?

By Camille Johnson, Audit Chemist

Zeroing the Spectrophotometer in Colorimetric Procedures

(Specifically, Phosphorus analysis)

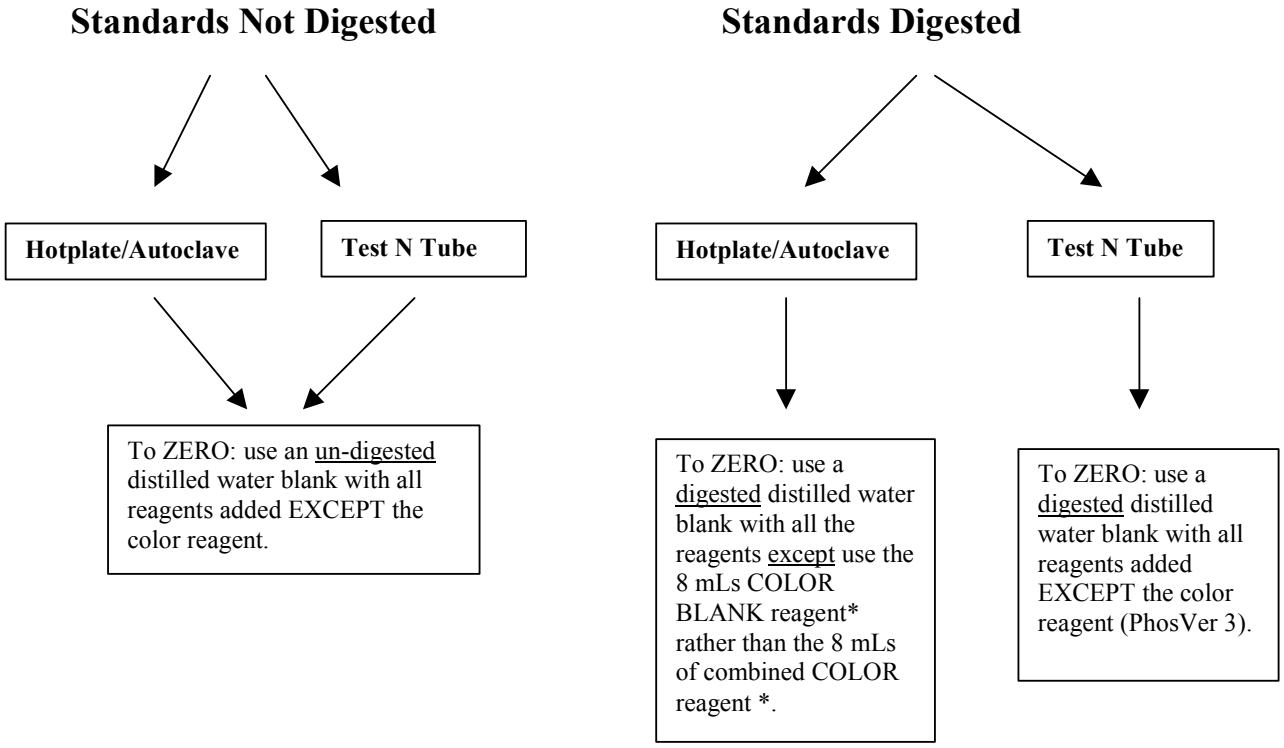
There are a variety of procedures being used for zeroing spectrophotometers or colorimeters for colorimetric analyses. In all colorimetric procedures the spectrophotometer should be zeroed using a reagent blank (could also be called a calibration blank). A reagent blank is made up of deionized/distilled water with all the reagents added except the reagents that result in the color change.

If the natural color of an undeveloped sample presents a problem, the sample absorbance should be corrected for this color interference. This is done by zeroing the instrument using a reagent blank, measuring the absorbances of the sample before and after color development, and subtracting the absorbance of the undeveloped sample from the absorbance of the developed sample.

A method blank will also need to be run with all colorimetric procedures. This is deionized/distilled water to which all reagents have been added including the color reagents. The method blank will identify potential contamination problems. There may be color visible in the method blank and/or the absorbance reading may be above the LOD, either of which would indicate contamination.

In summary, when performing colorimetric procedures you should zero the instrument with a reagent blank, measure the method blank to check for contamination, and correct sample absorbances when sample color causes significant background interference effects.

For phosphorus analysis you may use the flow chart below to determine what reagent/calibration blank you should be using. As you will see, the blank choice depends on the method and digestion procedure. □



*** Note:** COLOR Reagent = 50 mls of 5N sulfuric acid, 15 mLs ammonium molybdate, and 5 mLs antimonyl potassium tartrate + 30 mLs of ascorbic acid

COLOR BLANK Reagent = 50 mls of 5N sulfuric acid, 15 mLs ammonium molybdate, and 35 mLs DI water

Drinking Water

Residual Chlorine: Hach Color Wheel Not Acceptable for Compliance with Disinfection Byproducts Rule

Hach's color wheel test for residual chlorine can not be used to report data for compliance with Subchapter III of ch. NR 809, Wis. Adm. Code, Safe Drinking Water, (Maximum Contaminant Levels, Maximum Residual Disinfectant Levels, Analytical Requirements, and Control of Disinfection Byproducts and Disinfection Residuals). The test is simply not sensitive enough to verify that the maximum residual disinfectant level for chlorine of 4.0 mg/L is not exceeded.

Acceptable residual chlorine test procedures are listed in ch. NR 809, Table I, Wis. Adm. Code. Included are methods 4500 – CL D, 4500 – CL F, 4500 – CL G, and 4500 – CL H (Standard Methods for the Examination of Water and Wastewater, 19th Edition); and D1253-86 (Annual Book of ASTM Standards, Vol. 11.01, American Society for Testing and Materials, 1996 Edition).

It is important to note that this prohibition extends only to testing performed for regulatory compliance. Labs are still free to use the color wheel for routine internal monitoring of plant processes, etc., but this data can not be reported to the department for compliance purposes.

The Bureau of Drinking Water and Groundwater is not accepting data obtained from Color Wheel tests, but is currently working with drinking water systems as they develop and implement the acceptable test procedures listed above. The Department will begin formally enforcing this prohibition on January 1, 2004. Surface water systems serving populations greater than 10,000 should be using the methods mentioned above at the present time.

Please contact Greg Pils at (608) 267-9564 or gregory.pils@dnr.state.wi.us with any technical questions regarding residual chlorine test procedures or Carol McCurry at (608) 267-2449 or carol.mccurry@dnr.state.wi.us with questions about the requirements of the safe drinking water act or the disinfection byproducts rule. The administrative codes referenced above are available online at the Revisor of Statutes Bureau web site. □

www.legis.state.wi.us/rsb/code/index.html

General Interest Articles

Mercury Pollution Prevention/Non-Mercury Thermometers

DNR's Bureau of Cooperative Environmental Assistance started a Community Mercury Reduction Program in 1998. The DNR is partnering with 18 of Wisconsin's largest municipalities in implementing mercury education and recycling programs. The education of the public is provided by local community outreach using mailings, workshops, mercury product collections, displays and presentations to various groups of people in the community.

The program focuses on sectors where mercury products have historically been used. These include healthcare facilities, dental facilities, schools, HVAC contractors, dairy farms, auto scrap yards and households. Outreach programs for these sectors are developed through meetings with trade associations and other professionals. Through this program, Wisconsin municipalities collected and recycled 13,000 pounds of mercury over the last four years. This amount represents the largest public collections of mercury-containing products in the United States to date. Further, almost all the products collected for recycling were replaced permanently with non-mercury devices.

As part of the new ch. NR 106, Wis. Adm. Code, municipal wastewater treatment plants will need to reduce mercury discharges into their treatment systems from all sources, including laboratories. The two primary sources of mercury in laboratories are thermometers and testing reagents.

Highly accurate non-mercury thermometers, including some that are traceable to NIST are available, so laboratories will be encouraged to replace mercury thermometers with non-mercury equivalents. An alternative to replacing NIST-traceable thermometers, which are expensive, is to purchase an armor case for the thermometer to prevent breakage or to use thermometers encased in Teflon sleeves that prevent mercury releases if they are broken. Mercury thermometers can be recycled via municipal clean sweep programs or through the municipality's contract with their commercial recycling vendor.

Common tests that use mercury reagents include chloride, COD, Kjeldahl nitrogen, and mercury. For chlorides and Kjeldahl nitrogen (TKN), labs have alternatives to using mercury-containing reagents. For chlorides, both the silver nitrate titration and ion chromatography procedures are approved and mercury-free. An alternate catalyst for TKN that contains copper rather than mercury has EPA's approval so laboratories can make the switch. For COD, consider using reduced volume techniques. Laboratories can minimize mercury usage in the mercury test by limiting the calibration range or spiking samples at lower concentrations. Other reagents, such as concentrated acids, may contain mercury so it may be worthwhile to look beyond the common sources mentioned here.

For more information about mercury pollution prevention, contact Aidan Reilly, Community Mercury Specialist, at (608) 266-1962 or aidan.reilly@dnr.state.wi.us. □

Which Items in an Audit Report Require a Response?

By Rick Mealy, Laboratory Training Coordinator

The format of audit reports has gradually evolved over the past year and we've received some input that the report structure needs some clarification. Laboratories are required to respond to the audit report within 30 days of the date appearing on the audit report cover letter. A response is only required, however, for those numbered items appearing under a header labeled "Deficiencies". A response is not required for items included in the headings "Supplemental Information for Deficiencies" or "Recommended Laboratory Practices" as these items are provided to clarify deficient practices or provide suggestions to further improve laboratory quality.

One section of a typical report might look like the following:

Sample Audit Report:

Deficiencies

1.1 Samples that appear to be supersaturated with oxygen are not pre-treated to bring oxygen levels below saturation prior to analysis.

Supplementary Information for Deficiencies

[1.1] Once they have warmed to room temperature, samples should be vigorously shaken before determining initial DO. This will dislodge any supersaturated oxygen. This practice also can be used to bring solution water oxygen content to a known level (i.e. the saturation point).

Recommended Lab Practices

Dissolving commercially prepared seed formulations in distilled water can kill or severely shock the seed organisms. Introduction into a distilled water solution causes the cells to rupture, or lyse. Seed capsules should be dissolved in dilution water (after the nutrients have been added and well mixed. This solution creates an isotonic environment for the bacterial cells.

It is best to carefully pour off the supernatant liquid, after the seed settles, into a second beaker and then pipet from this beaker. This will ensure that you obtain a more consistent aliquot of seed organisms.

Continued on next page.

***Audit Response**, continued.*

In this case, the only item that the laboratory must address in its response is the deficiency that is labeled "1.1." The "Supplementary Information" labeled to complement the deficiency are designed to assist the laboratory in taking the appropriate corrective action to resolve the deficiency. In some cases, the auditor may specify information that the laboratory should submit (with its response) to substantiate that the deficiency has been corrected.

Information provided under the heading "Recommended Lab Practices" represents exactly that—one or more recommendations that will help improve the quality of data being generated. While these are not deficiencies, and no response is required, any information provided here is designed to benefit the laboratory. Most laboratory staff are committed to making whatever changes are necessary to obtain high quality data. Consequently, if your laboratory chooses to adopt the audit report recommendations, it's an excellent idea to document your decision in the audit response. This can be done by simply writing that your laboratory "has adopted each of the Recommended Lab Practices" appearing in the audit report, effective_____".

This is also a good opportunity to remind folks that the audit process does not conclude once the auditor leaves your laboratory. Preparing a strong response to the audit findings is critical to achieve a rapid resolution to the audit process. A strong audit response is one that very clearly and concisely addresses each deficiency in the audit report and includes documentation that substantiates that the deficiency has been resolved. In many cases, all it takes is to include a copy of a recent benchsheet or two that shows the necessary information. It is helpful if changes made are clearly highlighted in your submission and if attachments are labeled to indicate the particular deficiency to which they relate. □

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Substances of Concern at Low Levels

This list is published as a reminder that s. NR 149.15(3), Wis. Adm. Code, requires labs to report all results greater than the limit of detection (LOD) for those substances with standards specified in chs. NR 105, 140, and 720, Wis. Adm. Code, that are below the laboratory's limit of quantitation (LOQ). All results greater than the LOD but less than the LOQ must be appropriately qualified (consult ch. NR 149, Wis. Adm. Code, for definitions of the LOD and LOQ).

Chapter NR 809,Wis. Adm. Code, also requires this information to be reported for all regulated primary drinking water contaminants.

Be aware that some programs may require laboratories to report the results of all compounds down to the LOD, even if they do not appear on this list. It is the laboratory's responsibility to ensure that reporting requirements are met. Check with your clients or DNR staff to determine what reporting requirements apply. Labs are encouraged to report all results down to the LOD, thereby avoiding confusion and ensuring reporting requirements are always met.

A table of regulated substances and their standards under Chs. NR 140, 809, and 720, Wis. Adm. Code, is available in Chapter 6 of the "Program Information and Requirements" handbook, (also known as the "Yellowbook"), which can be down loaded from the Program's web site. □

www.dnr.state.wi.us/org/es/science/lc/download

INORGANICS

Metals
Antimony
Beryllium
Cadmium
Lead
Thallium
Mercury
Chromium (Hexavalent)

ORGANICS

Acids/Phenols
Pentachlorophenol (PCP)

Benzidines
Benzidine

Haloethers
Bis(chloromethyl)ether

Nitroaromatics
2,4-Dinitrotoluene
2,6-Dinitrotoluene

ORGANICS

Polynuclear Aromatic Hydrocarbons
Benzo(a)pyrene

Phthalates & Adipates
Di(2-ethylhexyl)phthalate

Nonpurgeable Chlorinated Hydrocarbons
Hexachlorobenzene

Dioxins/Furans
Dioxin

PCBs
Polychlorinated biphenyls

Chlorinated Pesticides
DDT and Metabolites
Heptachlor
Heptachlor epoxide
Lindane
Toxaphene

ORGANICS

Carbamate Pesticides
Aldicarb

Nitrogen Pesticides
Alachlor
Dimethoate
Parathion
Trifluralin

Volatiles
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,3-Dichloropropene (cis/trans)
Bromodichloromethane
Bromoform
Bromomethane
Chloroform
Chloromethane
Methyl tert-butyl ether (MTBE)
Methylene Chloride
Vinyl Chloride
Dibromochloropropane (DBCP)
Ethylene dibromide (EDB)

LabNotes – Spring 2003

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